May 5, 1891.

Prof. Flower, C.B., LL.D., F.R.S., President, in the Chair.

The Secretary read the following report on the additions to the Society's Menagerie during the month of April :—

The registered additions to the Society's Menagerie during the month of April were 83 in number. Of these 37 were acquired by presentation, 23 by purchase, 11 by exchange, 6 were born in the Gardens, and 6 were received on deposit. The total number of departures during the same period, by death and removals, was 73.

The most noticeable additions during the month were :—

1. An adult male example of what appears to be the Lesser Orang (*Simia morio*) of Owen, P. Z. S. 1836, p. 92[1], presented by Commander Ernest Rason, R.N., and received at the Gardens on April 15th.

Commander Rason writes to me that he obtained this animal at Kuching, Sarawak, from some natives, who brought it to him suspended from a pole after the manner of a Sloth. At first it was extremely savage and tried to bite, but soon became comparatively tame, and after a week would allow itself to be carried about and made a pet of. After three months' time he says "George," as he calls the animal, does not seem to have grown in height at all, and, judging by the look of his teeth, must be about ten years old; but having had plenty to eat and little exercise has grown much fatter.

Simia morio is generally stated to differ from the larger *S. satyrus* not only in its smaller size but also in the entire absence of cheek-callosities, which are certainly not apparent in the present specimen. The skull is also stated to be quite different from that of the larger form.

2. An example of the Great-billed Tern (*Phaethusa magnirostris*) from South America, obtained by purchase.

This Tern is new to the collection.

Mr. T. D. A. Cockerell read notes on some Slugs of the Ethiopian Region, based on specimens in the collection of the British Museum.

It having been arranged that a special discussion should be held on the Fauna of British Central Africa, Mr. Sclater opened the subject with the following remarks:—

"British Central Africa" is the official name for that portion of East-African territory under the British sphere of influence which is situated immediately north of the Zambesi. On the south it is bounded mostly by the Zambesi, a corner between the Zambesi and the Lower Shiré having been cut off for the benefit of the Portuguese, while to the east of the Shiré the Ruo forms the southern border. From the highest affluents of the Ruo the boundary runs north to Lake Shirwa, and thence in a slanting line to the eastern bank of Lake Nyassa, which it reaches at about 13° 50′ S. lat. The whole of

[1] See also Rajah Brooke's Note on this subject, P. Z. S. 1841, p. 55.

the western bank of Lake Nyassa belongs to British Central Africa, and I suppose also the western half of the lake, from the end of which the border-line runs irregularly westward to the base of Lake Tanganyika, thus embracing the whole of what is called the "Tanganyika Plateau." On the north-west and west the boundaries of British Central Africa have still to be definitely settled. But it is quite understood, I believe, that lakes Moero and Bangweolo and the adjoining lands to the east come within the sphere of British influence, and that the Barotsi Highlands and the great valley of the Loangwa and its eastern tributaries are also within the area of "British Central Africa."

To govern this enormous territory of perhaps some 500,000 square miles in extent, Lord Salisbury has selected our Fellow, Mr. Henry Hamilton Johnston, C.B., well known to science for his explorations both in the Western and in the Eastern Tropics of the African Continent. Mr. Johnston has already departed from England for the scene of action. But he leaves behind him Mr. Bertram L. Sclater, R.E., the Chief of his Staff, and Mr. Alexander Whyte, F.Z.S., his Naturalist, and for the benefit and instruction of these gentlemen, who have favoured us with their company to-night, I venture to bring before you a few remarks on the Zoology of this part of Africa, chiefly in order to show how little we know and how much we want to know, and to invite you to a discussion on the subject.

Mr. Johnston informs us that he wishes to make a thorough examination of the Fauna, Flora, and Geology of British Central Africa; that is, as already pointed out, of the shores and waters of Lakes Nyassa, Tanganyika, Shirwa, Bangweolo, Moero, and of the Rivers Zambesi, Loangwa, Shiré, &c., and of the country generally comprised between the limits of the left bank of the Zambesi, the east shore of Lake Nyassa, and the southern watershed of the Congo.

I am sure we shall be all glad to help him in such a laudable undertaking, and that he means to attempt what he says is shown by his engagement of Mr. Whyte as Naturalist to his expedition, and by his having supplied Mr. Whyte with all the apparatus necessary for this purpose.

The large area just described as British Central Africa will be divided for administrative purposes, I believe, into three sections:—(1) Nyassa-land, comprising the eastern portion, lying within the basin of Lake Nyassa and the Shiré; (2) Bangweolo-land, comprising the north-western portion draining mostly into the Congo; and (3) Barotsi-land, comprising the south-western portion drained by the upper affluents of the Zambesi. Of the two last-named divisions it may be stated at once that, as regards their zoology, they are absolutely *terræ incognitæ*. They have, in fact, as yet only been visited by a few adventurous travellers, who have not had time nor occasion to attend to natural science. As regards Nyassa-land the case is a little different; a certain number of Europeans, chiefly for missionary purposes, have been settled in several parts of this territory for the past thirty years, and a certain number of zoological specimens have

been acquired through their means. I will therefore say a few words upon the general state of our knowledge of the Zoology of Nyassa-land.

So far as we can tell from our present very imperfect knowledge of the subject, the fauna of Nyassa-land will be best considered in three divisions:—(1) the Basin of the Shiré, (2) the Shiré Highlands, (3) the Basin of Lake Nyassa. As regards our knowledge of its Zoology, the following are the principal authorities to be referred to:—

1. Bianconi's 'Specimina Zoologica Mosambicana,' published at Bologna in parts from 1850–67.

Bianconi was Professor of Zoology in the University of Bologna, and described various specimens from the collections sent home to him by Fornasini from Mozambique, in a somewhat antiquated fashion. No complete account of the animals of any branch of zoology is given in his work.

2. Peters's 'Naturwissenschaftliche Reise nach Mossambique,' in four volumes, published at Berlin from 1852 to 1882. This is the most important work that has yet appeared upon the Zoology of South-eastern Africa. Our former Foreign Member, Dr. W. Peters of Berlin, passed six years at various stations in Portuguese East Africa from 1842 to 1848, and made excellent collections in every branch of zoology. Peters, though always hard at work, was somewhat dilatory in publication, and only succeeded in getting out the four volumes above mentioned, though others were in contemplation, and in fact had been partly prepared at the time of his death in 1883. The first volume, published in 1852, gives us an excellent account of the Mammals of Mozambique; the second, intended to contain the Birds, was never published; the third, relating to the Reptiles and Amphibians, was issued in 1882; the fourth, containing the Freshwater Fishes, in 1868. These three volumes were prepared by Peters himself. The fifth volume, devoted to the Insects and Myriapods, was written, except as regards the last-named group, by Peters's colleagues in the Berlin Museum.

3. Finsch and Hartlaub's 'Vögel Ost-Afrikas,' published at Leipzig in 1870. This volume, which forms a portion of Von der Decken's 'Reisen in Ost-Afrika,' is the only general systematic work on the Birds of Eastern Africa yet published. But the discoveries and explorations since made have been so numerous, that Finsch and Hartlaub's work, though nearly exhaustive at the time it was issued, has now become more or less antiquated, and much requires to be replaced by a new publication.

4. Dr. Kirk's "List of the Mammals of Zambesia," published in our 'Proceedings' for 1864.

Dr. Kirk gives notes on 67 species of Mammals met with during his various journeys up the Zambesi and Shiré to Lake Nyassa and on the coast of Mozambique.

5. Dr. Kirk's article "On the Birds of the Zambesi Region," published in 'The Ibis' for 1864 (p. 307).

Dr. Kirk gives notes on 150 species of which he collected examples

along the Zambesi, its tributary the Shiré, and on the western shore of Lake Nyassa.

6. In the same volume of 'The Ibis' (p. 301) I gave an account of an excellent collection of rapacious birds made by the late Dr. Dickinson, principally at Chibisa on the Shiré near the upper limit of navigation, where he died in 1863. It contained examples of 22 species.

7. Dr. Günther's Report on the Reptiles and Fishes collected by Sir J. Kirk in the Zambesi and Nyassa Region, published in our 'Proceedings' for 1864 (p. 303). This paper gives a list of 30 Reptiles, 11 Batrachians, and 30 Fishes, of which examples were obtained by Sir John Kirk. The paper is prefaced by some valuable remarks by the collector. A new genus of Cyprinoids from Lake Nyassa is characterized as *Pelotrophus*.

8. Dr. H. Dohrn's List of the Land and Freshwater Shells of the Zambesi and Lake Nyassa collected by Sir John Kirk, published in the Society's 'Proceedings' for 1865 (p. 231).

Twenty-four species are noticed in this list by Dr. Dohrn, of which 7 are described as new.

9. The collection submitted by Sir John Kirk to Dr. Dohrn did not include the *Unionidæ*. The specimens of this group were sent to Mr. Isaac Lea of Philadelphia, a well-known specialist on this group of Mollusks. Lea referred Sir John Kirk's specimens to six species, all of which he described as new in a paper read before the Academy of Natural Sciences of Philadelphia in April 1864[1].

10. In Dr. Günther's "Contribution to the Knowledge of Snakes of Tropical Africa," published in the 'Annals and Magazine of Natural History' for 1888 (ser. 6, vol. i. p. 322), several species are described from the Nyassa district, but the names of the collectors are not recorded. The paper concludes with a list of 46 species of Snakes known to inhabit the Central Lake district of Tropical Africa.

11. Mr. Edgar Smith's paper on the Shells of Lake Nyassa, published in our 'Proceedings' for 1887 (p. 712).

This was based principally upon specimens collected by Mr. F. A. Simons.

12. Mr. R. Crawshay's valuable notes on the Antelopes of Nyassa-land, which was read at our meeting on the 2nd of December last[2].

Mr. Crawshay's list of the Antelopes of Nyassa-land contains 12 species, but others no doubt, particularly among the smaller forms, remain to be added to it.

This is positively the only information yet published on the Mammals of the Nyassa Basin.

These are the principal publications relating to the fauna of Nyassa-land that I am acquainted with. There are no doubt many others which will be mentioned by the various naturalists who will kindly contribute towards our information on this subject on the present occasion. As I said before, Nyassa-land, so far as we at

[1] See Proc. Acad. Nat. Sci. Philad. 1864, p. 108.

[2] See P. Z. S. 1890, p. 648.

present know it, appears to be best divisible into three sections for faunistic purposes; these are:—

1. *The Basin of the Shiré* below the cataracts, the fauna of which is probably indentical with that of the Lower Zambesi. Katunga, where the navigation of the Shiré ends, is about 500 feet above the sea-level.

2. *The Shiré Highlands*, in parts of which the hills run up to an elevation of 8000 feet, and where we should accordingly expect to find a considerable modification of the fauna.

3. *The Basin of Lake Nyassa*, where the lake itself lies at an elevation of about 1500 feet above the sea-level. The adjoining ranges on the western side, which is alone in British territory, will probably be found to possess a fauna nearly allied to that of the Shiré Highlands.

Mr. G. A. Boulenger then read the following paper "On the State of our Knowledge of the Reptiles and Batrachians of British Central Africa."

As may well be expected, our information respecting the herpetological fauna of this district is at present very meagre. The only specimens with precise localities in the British Museum are derived from five sources, viz.:—(1) 15 specimens from the Shiré Valley, purchased in 1864; (2) 11 specimens from the Blantyre Mission Station, on the Shiré highlands, and Lake Nyassa, collected by Mr. F. A. Simons, purchased in 1877; (3) 5 specimens from Lake Nyassa, collected by Mr. J. B. Thelwall, purchased in 1877; (4) 5 specimens from Lake Nyassa, purchased of Mr. Cutter in 1877; (5) 7 specimens from Lake Nyassa, purchased of the Universities' Mission in 1888.

Most of the Snakes have been noticed by Dr. Günther in a recent paper on the Snakes of Tropical Africa (Ann. & Mag. N. H. [6] i. 1888, p. 322), in which two new species from Lake Nyassa and one from the Shiré are described, and most of the Lizards and Batrachians will be found mentioned in the British Museum Catalogues (1882–1887). There are in addition a number of specimens in the Museum which are labelled "Zambesi," or "Zambesi Expedition," from Sir J. Kirk's collections, many of which were procured in the district with which we are at present dealing. A report on these Reptiles was published by Dr. Günther in the 'Proceedings' of this Society for 1864 (p. 303). Owing to the absence of precise information as to localities, I have abstained from mentioning them in the list appended to this communication. Other works of special importance in the study of this fauna are Peters's 'Reise nach Mossambique,' vol. iii. Reptiles, 1882, and Bocage's numerous papers in the "Jornal de Sciencias" of the Academy of Lisbon. No doubt many of the Reptiles described from the Portuguese possessions of South-west Africa will eventually be rediscovered to the East, our knowledge being already sufficiently advanced to show in a striking manner the homogeneity of the herpetological fauna of Southern tropical Africa.

In the following list I have enumerated all the Reptiles and Batrachians of British Central Africa of which specimens with localities are preserved in the British Museum.

LIZARDS.

1. Hemidactylus mabouia, Mor.; Cat. Liz. i. p. 122.
Shiré Valley.

2. Pachydactylus oshaughnessyi, Blgr.; Cat. Liz. i. p. 204, pl. xvi. fig. 3.
Lake Nyassa (*Thelwall*; *Simons*).

3. Varanus albigularis, Daud.; Cat. Liz. ii. p. 308.
Lake Nyassa.

4. Monopeltis sphenorhynchus, Ptrs.; Cat. Liz. ii. p. 455.
Shiré Valley.

5. Nucras tessellata, Smith; Cat. Liz. iii. p. 52.
Lake Nyassa.

6. Lygosoma sundevalli, Smith; Cat. Liz. iii. p. 307.
Lake Nyassa (*Thelwall*).

7. Ablepharus wahlbergi, Smith; Cat. Liz. iii. p. 350.
Lake Nyassa (*Thelwall*).

SNAKES.

8. Typhlops obtusus, Ptrs.

Typhlops obtusus, Peters, Mon. Berl. Ac. 1865, p. 260, pl.—. fig. 2, and Reise n. Mossamb. iii. p. 95 (1882).
Shiré Valley.

9. Simocephalus nyassæ, Gthr.

Simocephalus nyassæ, Günther, Ann. & Mag. N. H. (6) i. 1888, p. 328.
Lake Nyassa.

10. Prosymna ambigua, Bocage.

Prosymna ambigua, Bocage, Jorn. Sc. Lisb. iv. 1873, p. 218.
Shiré Valley.

11. Chlorophis irregularis, Leach.

Ahætulla irregularis, Günth. Cat. Col. Sn. p. 152 (1858).
Philothamnus irregularis, Bocage, Jorn. Sc. Lisb. ix. 1882, p. 4.
Ahætulla shirana, Günth. Ann. & Mag. N. H. (6) i. 1888, p. 326.
Shiré Valley, Blantyre Mission Station (*Simons*).

12. Philothamnus semivariegatus, Smith.

Ahætulla semivariegata, Günth. Proc. Zool. Soc. 1864, p. 307.

Philothamnus punctatus, Peters, Mon. Berl. Ac. 1866, p. 889, and Reise n. Mossamb. iii. p. 129, pl. xix. a. fig. 1 (1882); Bocage, l. c. p. 14.

Shiré Valley (*Kirk*); L. Nyassa (*Universities' Mission*).

13. Amphiophis[1] nototænia.

Coronella nototænia, Günth. Proc. Zool. Soc. 1864, p. 309, pl. xxvi. fig. 1, and Ann. & Mag. N. H. (6) i. 1888, p. 333.

Ablabes hildebrandtii, Peters, Mon. Berl. Ac. 1878, p. 205, pl. ii. fig. 6; Fischer, Jahrb. Hamb. Wiss. Anst. i. 1884, p. 7.

Tachymenis nototænia, Peters, Reise n. Mossamb. iii. p. 118 (1882).

Lake Nyassa (*Thelwall*); Cape McLear, L. Nyassa (*Simons*).

14. Psammophis sibilans, L., var. subtæniata, Peters.

Psammophis sibilans, var. *subtæniata*, Peters, Reise n. Mossamb. iii. p. 121 (1882); Fischer, Jahrb. Hamb. Wiss. Anst. i. 1884, p. 12.

Cape McLear, Lake Nyassa (*Simons*); L. Nyassa (*Universities' Mission*).

15. Psammophis angolensis.

Amphiophis angolensis, Bocage, Jorn. Sc. Lisb. iv. 1872, p. 82; Peters, Sitzb. Ges. naturf. Fr. 1881, p. 149.

Ablabes homeyeri, Peters, Mon. Berl. Ac. 1877, p. 620.

Dromophis angolensis, Boettg. Ber. Senck. Ges. 1888, p. 55.

Cape McLear, Lake Nyassa (*Simons*).

16. Thelotornis kirtlandi, Hallow.

Thelotornis kirtlandii, Peters, op. cit. p. 131, pl. xix. fig. 2.

Lake Nyassa (*Universities' Mission*).

17. Leptodira semiannulata, Gthr.

Leptodira semiannulata, Günth. Ann. & Mag. N. H (4) ix. 1872, p. 31.

Lake Nyassa (*Universities' Mission*).

18. Calamelaps miolepis, Gthr.

Calamelaps miolepis, Günth. Ann. & Mag. N. H. (6) i. 1888, p. 323.

Cape McLear, L. Nyassa (*Simons*).

[1] *Amphiophis*, Smith, is closely allied to *Psammophylax*. Twelve subequal maxillary teeth, followed by an enlarged, grooved tooth; mandibular teeth subequal. Nasal semidivided; frontal narrow. Eye moderate, with round pupil. Scales smooth, with apical pits. Ventrals rounded. Tail moderate; subcaudals in two rows.

19. Uriechis capensis, Smith.

Elapomorphus capensis, Smith, Ill. Zool. S. Afr., Rept., App. p. 16 (1849).

Uriechis capensis, Jan, Icon. Gén. Ophid. livr. 15, pl. i. fig. 5 (1866); Peters, Reise n. Mossamb. iii. p. 112 (1882); Günth. Ann. & Mag. N. H. (6) i. 1888, p. 324.

Cape McLear, L. Nyassa (*Simons*).

20. Uriechis lunulata, Ptrs.

Uriechis lunulatus, Peters, Mon. Berl. Ac. 1854, p. 623, & op. cit. p. 113, pl. xviii. fig. 2; Günth. l. c. p. 324.

Lake Nyassa.

21. Naia haie, L.

Naia haie, Peters, Reise n. Mossamb. iii. p. 137 (1882).

Shiré Valley.

22. Naia nigricollis, Reinh.

Naia nigricollis, Reinh. Dansk. Vid. Selsk. x. 1843, p. 269, pl. iii. figs. 5–7; Peters, op. cit. p. 138, pl. xx. figs. 9 & 10.

Naia mossambica, Peters, Mon. Berl. Ac. 1854, p. 625.

Shiré Valley.

23. Atractaspis rostrata, Gthr.

Atractaspis rostrata, Günth. Ann. & Mag. N. H. (4) i. 1868, p. 429, pl. xix. fig. J.

A. bibronii (*non* Smith), Peters, op. cit. p. 142, pl. xix. a. fig. 3.

Lake Nyassa (*Universities' Mission*).

24. Causus rhombeatus, Licht.

Causus rhombeatus, Peters, op. cit. p. 144.

Blantyre Mission Station (*Simons*).

BATRACHIANS.

25. Rappia concolor, Hallow.; Cat. Batr. Ecaud. p. 124.

Shiré Valley.

26. Megalixalus fornasinii, Bianc.; Cat. Batr. Ecaud. p. 130.

Shiré Valley; Lake Nyassa.

27. Hylambates maculatus, A. Dum.; Cat. Batr. Ecaud. p. 134.

Shiré Valley.

28. Phrynomantis bifasciata, Smith; Cat. Batr. Ecaud. p. 172.

Shiré Valley.

29. Breviceps verrucosus, Rapp; Cat. Batr. Ecaud. p. 177.
Lake Nyassa (*Universities' Mission*).

Mr. Edgar A. Smith offered the following remarks on the Molluscan Fauna of British Central Africa:—

So far as I can ascertain, very little seems to be known of the Mollusca of this region, and it is only that part of the country near Lake Nyassa and the lake itself which have been partially investigated. Sir John Kirk was the first to collect in this district, and the specimens he obtained were described by Dr. Dohrn in the 'Proceedings' of this Society for 1865, and by Isaac Lea in the Proc. Acad. Nat. Sci. Philad. for 1864. Some years later Mr. F. A. Simons visited Nyassa and brought home a number of new forms from the lake, which I described in the 'Proceedings' of this Society for 1877. Finally M. Victor Giraud, whilst travelling in the Lake region, also made collections of shells from Nyassa, which were reported upon by M. Bourguignat[1] in 1889. These were obtained at the northern end of the lake, whilst those collected by Sir John Kirk and Mr. Simons were from the southern extremity.

Judging from what we know of the Mollusca of that part of Africa which lies to the east and south of this district, I do not anticipate that many very remarkable forms will be discovered. Doubtless interesting intermediate links connecting some of the large species of *Achatina* may be met with, and a number of new species of other groups of Helicidæ, besides a few forms of freshwater shells, will be found. It is to be hoped, however, that these conjectures may prove incorrect, and that future investigators will be rewarded by the discovery of many, not only new and interesting specific, but also generic forms.

In Capello and Ivens's work 'De Angola á Contra-Costa,' a number of species collected by those travellers has been enumerated by A. Furtado. Although obtained to the south of British Territory, some of them have already been recorded from the Nyassa region; and it is therefore probable that others, eventually, will also be found to range as far northward.

In the following list none of the so-called species characterized by M. Bourguignat are quoted, because, in my opinion, most of them, if not all, are merely varieties of those previously described.

List of the known Species of Mollusca from Lake Nyassa.

1. *Limnæa natalensis*, Krauss.
2. *Physa nyassana*, Smith.
3. —— *succinoides*, Smith.
4. *Physopsis africana*, Krauss.

[1] Bull. Soc. Mal. France, 1889, pp. 1–40.

5. *Viviparus politus*, Frauenfeld. } ? Modifications of one species.
6. —— *jeffreysi*, Frauenfeld.
7. —— *capillatus*, Frauenfeld.
8. —— *robertsoni*, Frauenfeld.
9. *Bythinia stanleyi*, Smith.
10. *Lanistes affinis*, Smith.
11. —— *solidus*, Smith.
12. —— *ovum*, Peters.
13. —— *purpureus*, Jonas.
14. —— *nyassanus*, Dohrn.
15. *Melania tuberculata*, Müller.
16. —— *nodicincta*, Dohrn.
17. —— *simonsi*, Smith. } ? Modifications of one species.
18. —— *polymorpha*, Smith.
19. —— *turritispira*, Smith.
20. —— *pupiformis*, Smith.
21. —— *nyassana*, Smith.
22. *Corbicula radiata*, Parreyss.
23. —— *astartina*, Martens.
24. *Unio nyassaensis*, Lea.
25. *Spatha alata*, Lea.
26. —— *nyassaensis*, Lea.

Examples of the following species of Land-Shells were obtained by Sir John Kirk, as quoted by Dohrn:—

1. *Helix mosambicensis*, Pfeiffer.
2. *Streptaxis kirkii*, Dohrn.
3. *Ennea lævigata*, Dohrn.
4. *Achatina lamarckiana*, Pfr.
5. —— *panthera*, Férus.
6. *Buliminus stictus*, Martens.
7. —— *catenatus*, Martens.
8. *Cyclostoma calcareum*, Sowerby.

A communication was then read from Mr. E. T. Newton, F.Z.S., containing the following "Notes on the Geology of British Central Africa":—

Although so little is definitely known of the Geology of Nyassaland, that it may almost be said to be a *new* field for geological exploration, yet we are not altogether without information as to some points of its general structure.

Livingstone did not neglect the rocks over which he travelled, and some scattered geological information may be found in his 'Missionary Travels' concerning regions bordering on "British Central Africa."

Additional facts of no little value were made known by Mr. James Stewart, C.E., in the Report of his journey on the western shores of Lake Nyassa, read before the Geographical Society (Proc. R. Geogr. Soc. vol. iii. 1881, p. 264).

The fullest and most interesting account of the Geology of the Nyassa country is that given by Prof. Henry Drummond as "a Geological Sketch" in chapter viii. of his 'Tropical Africa,' published in 1881. This sketch embraces the whole of the country he traversed from the mouth of the Zambesi to the Tanganyika Plateau. A coloured map accompanying this sketch serves to indicate in a general way the positions of the rocks that have been recorded by others, or directly observed by Prof. Drummond himself. In this chapter the fossil Fishes found by the author are described in detail by Dr. R. H. Traquair.

Quite recently Prof. Rupert Jones (Geol. Mag., Dec. 1890) has given an account of the coal and the fossil shells which have been found near the N.W. extremity of Lake Nyassa.

Starting from the mouth of the Zambesi, at a distance of about 50 miles from the coast, there is, according to Prof. Drummond, an ancient Coral-reef, which, although standing only a few feet above the sea-level, probably indicates a slight elevation of this part of the coast.

About 20 miles further inland near Shupanga, and still only at a very slight elevation, sedimentary rocks were met with consisting of "a few thin beds of red and yellow sandstones and fine conglomerates." No fossils were found; but these deposits are believed to be of the same age as the beds at the Cape, which are known as the Karoo formation (Lowest Mesozoic), which seems to extend as far north as Zanzibar and Mombasa.

Beds of coal are said to occur far up the Zambesi, at a place called Tete, and are probably associated with beds of the Karoo age, which it is thought will be found to form a narrow belt fringing the plateau of the interior.

A little above the junction of the Shiré River and the Zambesi, the first hills of the plateau begin; they vary in height from 100 or 200 feet to 2000 feet, and those examined by Prof. Drummond "consisted entirely of white quartzite," the only quartzite he saw in Central Africa. At the foot of one of these hills (Morumballa) there is a hot spring, described by Livingstone.

Livingstone spoke of coal occurring about 2 or 3 days' journey N.W. of Morumballa, but Prof. Drummond, after careful search, could find no trace of coal in the neighbourhood, and is of opinion that a black rock (very dark diorite) which does occur, and in the distance looks very like coal, must have misled Livingstone.

The great African Plateau, including the upper part of the Shiré River and the greater part of the country surrounding the Nyassa Lake, as well as half the plateau between the Nyassa and the Tanganyika, consists almost wholly of *granite* and *gneiss*; the character of the rocks being remarkably uniform throughout the area.

Volcanic rocks occur at several places along the Zambesi and also at the northern end of the Nyassa.

About six miles S. by E. of Mount Waller, on the N.W. shore of Lake Nyassa, Mr. James Stewart noticed some *coal* occurring about a mile and a half from the Lake shore and about 500 feet above its

level. His report of this coal was very favourable, as it made a good fire and burned up strongly. Prof. Drummond, however, who seems to have examined the same bed, at the same place, is much less satisfied with the coal *he* tried, and did not think it of much economic value.

Mount Waller, which rises some 3100 feet above the lake, was visited by Mr. Stewart, and found to consist of horizontal argillaceous and sandy beds, of varying degrees of hardness—three bands of coarse grit forming a broad ledge along the mountain side at an elevation of about 1200 feet.

Not far from the village of Karongo, at the N.W. extremity of Lake Nyassa, Prof. Drummond met with a series of sedimentary deposits, some of which are fossiliferous. These he believes to be continuous with the coal-bearing series near Mount Waller, although situated about 60 miles further to the north-west.

The fossils found are of much interest, being the first recorded from Central Africa. They consist of some fragmentary fish-remains and some shells. The fishes have been described by Dr. R. H. Traquair as *Acrolepis ? drummondi* and *A. africanus*; while the mollusks have been named by Prof. T. Rupert Jones *Iridina oblonga*.

From these fossils it is evident that the deposits are closely related to the Karoo formation, which is so well known further south on account of the *Dicynodon* and other remarkable reptilian remains which it has yielded.

———

Remarks were also made by Dr. A. Günther on the Fishes, by Mr. O. Thomas on the Mammals, by Mr. Stebbing on the Crustaceans, by Mr. Salvin on the Butterflies, and by Mr. Beddard on the Earthworms of British Central Africa.

———

The following papers were read :—

1. Description of a new Pigeon of the Genus *Carpophaga*. By the Hon. Walter Rothschild, F.Z.S.

[Received April 10, 1891.]

(Plate XXVIII.)

The Pigeon described below was sent from the Chatham Islands by my collector Henry Palmer.

This Pigeon, which at Professor Newton's suggestion I propose to call *Carpophaga chathamensis*, is very closely allied to the *Carpophaga* of New Zealand, *Carpophaga novæ zealandiæ*, but can be at once distinguished from it not only by the very considerable differences in colour, but also by its much larger size and larger beak.

Carpophaga chathamensis, sp. nov. (Plate XXVIII.)

Adult male. Head, neck, and fore part of breast deep brownish